Cost As An Independent Variable (CAIV)

This guide highlights the Department of Defense initiative on Cost As An Independent Variable (CAIV). This guide will provide a general overview of what CAIV is all about, some thoughts regarding Cost-Performance Tradeoffs, and some tips on how to successfully utilize CAIV.

What is Cost As An Independent Variable?

Cost As An Independent Variable (CAIV) is an acquisition strategy that seeks to reduce overall life cycle costs and continue to meet the future needs of the U.S. Armed Forces with highly capable weapon systems at affordable costs. The CAIV strategy provides for setting aggressive, realistic cost objectives and managing risks to obtain those objectives. The cost objectives must balance mission needs with projected out-year resources, taking into account existing and anticipated future technology improvements in DoD and defense industries. Upon determining the performance and cost objectives, on the basis of cost-performance tradeoffs, the acquisition process will make cost more of a constraint, and less of a variable, while continuing to obtain the needed military capability of the system. The user has a strong role in the CAIV strategy through participation in determining and developing program goals throughout the program, particularly in the cost-performance process.

This ODUSD(AR) Information Guide outlines the process toward achieving the objectives of CAIV, which include:

- Analyzing results of tradeoff studies to establish cost goals and objectives;
- Setting realistic and aggressive cost objectives early in each acquisition program;
- Managing risks to achieve cost, schedule and performance objectives;
- Devising appropriate metrics for tracking progress in setting and achieving cost objectives;
- Motivating government and industry managers to achieve program objectives; and
- Putting in place for fielded systems additional incentives to reduce operating and support costs.

Cost-Performance Tradeoff

The CAIV approach formalizes the process for cost-performance schedule tradeoffs and better connects the user, the developer and O&S staff to facilitate the tradeoff process and arrive at an affordable balance between performance and a

schedule. By making choices to provide the best performance for the money available, maximum benefit is achieved from all systems. Since the best time to reduce life cycle costs is early in the acquisition process, cost performance analysis must be performed prior to finalizing the acquisition process. Tradeoffs should occur throughout the process to accommodate new information and anticipated changes. Life cycle cost objectives should be incorporated in RFPs, program requirements documents and contracts.

How To Be A Success Using CAIV

1. Set Aggressive Cost Objectives!

Aggressive cost objectives are the DoD equivalent to sound commercial business practices. Setting aggressive cost objectives early in the CAIV acquisition process, will reduce life cycle costs which include research and development costs, production costs and operating costs.

Life cycle cost objectives should consider:

- Mission effectiveness, analysis and trades
- Technology trends
- Cost estimates associated with the foregoing
- Use of innovative manufacturing techniques
- Commercial practices
- Available near-term and out-year resources

2. Manage Risks!

Cost and risk management involves constructing a plan and schedule of events and demonstrations, and other means, to verify solutions to cost/risk problems. Risks always exist, but process maturity, aggressive management and other initiatives will reduce risks. Risks in achieving both performance and aggressive cost goals must be actively managed through continued assessment of:

- Cost trends
- Technical progress indicators
- Schedule trends
- Risk tradeoffs (alternative solutions)
- Systematic reduction of manufacturing process uncertainties
- Design verification/demonstration

3. Use Metrics To Track Progress!

When applying CAIV to programs, metrics are necessary for overall assessment of CAIV implementation and the execution of the program. Metrics identify important steps which should be implemented in setting aggressive production and cost objectives and then managing each step for success. Metrics should be tailored for each program.

- DoD Management Factors For Achieving Cost Objectives:
  - Establish a cost performance IPT along with its schedule and deliverables
  - Identify tradeoff space to help define program baseline and RFP.
  - Identify a strict minimum number of performance specifications outlined in the RFP.
  - Identify risks to achieving cost objectives and program steps to address the risks.
  - Include incentives for achieving cost objectives in the RFP and contract.
  - Develop a mechanism for contractor suggestions to reduce production and O&S costs via a robust contractor incentive plan.
  - Develop a metric measurement and estimation of CAIV based goals.

- Helping contractors achieve cost objectives:
  - Insure that appropriate tools are available for cost-performance tradeoffs (including incentives for corporate management) and lead cost-performance tradeoffs.
  - Encourage contractors to identify (and when appropriate implement) new technologies and manufacturing processes that can reduce costs.
  - Encourage contractors to identify procedural and/or process impediments to cost reduction measures.
  - Establish a similar atmosphere within the vendor base.

4. Build Incentives For Achieving Cost Objectives!

Motivating the government workforce by offering formal recognition of accomplishments, and motivating industry by using competition are two new incentive concepts for achieving cost objectives.

- Motivate The Government Workforce:

  - Upper level management should clearly support CAIV-based cost objectives and foster a positive "can do' attitude to all workers from top to bottom.
  - Government managers should provide an environment that promotes workforce goal setting and teamwork.
  - Offer promotions and awards for a job well done.
  - Reward successful achievement of aggressive cost objective, as well as good attempts to achieve cost objectives.

- Motivate Industry By Using Competition, Profit Incentives and Contract Incentives:

  - Maximize competition wherever possible to win business. Keep competition open as far into the acquisition process as practical and affordable
  - Ensure profit in all phases of the program's life cycle is tied to life cycle cost reduction performance, as well as other usual parameters.
  - Contracts should include strict cost objectives and thresholds that will provide a rebate of a substantial percentage of savings when actual costs are below cost objectives.
  - RFPs, subsequent contracts, and proposals should state cost objectives for the development phase, the production phase and then again in the O&S phase. (The O&S phase may require a validated model that relates specific design parameters to measurable and predictable O&S costs.)
  - PMs should encourage contractors to incentivize sub-contractors to heed cost objectives so that all can profit.
  - Source selection criteria, communicated to industry, should reflect the importance of developing a system that can achieve government's production and life cycle cost thresholds.

5. Develop And Implement Incentives For Fielded Systems!

Government and industry should be participants in developing and implementing incentives for fielded systems. The government could use an annual award programs to recognize valuable suggestions for reducing the life cycle costs for fielded systems. A second program that should be encouraged is the utilization of annual incentive program, to encourage Component funding of high leverage proposals for investments to reduce future life cycle costs.